B A N G L A D E S H

Nutritional Surveillance Project

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National vitamin A supplementation coverage

Who are not reached and how can coverage be increased further?

The provision of vitamin A capsule (VAC) supplements to preschool children is a proven strategy against vitamin A deficiency (VAD) and its consequences. VAC has been shown to reduce child mortality by 23%. The Government of Bangladesh has a policy to distribute VAC with measles immunization for children aged 6-11 mo through the Expanded Program on Immunization (EPI); children aged 12-59 mo are covered biannually and coverage exceeds the national target of 80%. To further increase coverage, special strategies are needed to cover those children who are currently missed. Helen Keller International has analyzed the Nutritional Surveillance Project (NSP) data to characterize the children that are missed by the VAC distribution in order to identify necessary modifications aimed at a higher coverage of VAC among all eligible children. Furthermore, fixing distribution months to two specific months in the year will strengthen the planning and coordination by administrative units implementing the National Vitamin A Plus Campaign (NVAC) in rural and urban Bangladesh.

The effect of vitamin A supplementation (VAS) on reducing child mortality by 23% is well documented[1]. Night blindness is only the tip of the iceberg of VAD symptoms; many more children who do not show this specific clinical sign of vitamin A deficiency are suffering from increased disease duration and severity and are at higher risk of death due to VAD[2]. Children in Bangladesh are at greater risk of VAD due to limited access to vitamin A (VA) rich foods, especially animal source foods[3], high prevalence of infectious diseases; and frequent disasters further aggravate the situation[4]. Therefore, in order to reduce morbidity and mortality and keep the national prevalence of night blindness below 1% (the cut-off for considering vitamin A deficiency a public health problem), universal VAC coverage is essential.

The Government of Bangladesh (GOB) implemented a new strategy, the National Vitamin A Plus Campaign (NVAC) from 2003 with an objective to maintain the high coverage of VAC as the National Immunization Days (NIDs) against polio were being phased out. From 2003 to 2005, the national VAC coverage among children aged 12-59 mo remained as high as 80% (**Figure 1**). Data at divisional level however showed divergence: notably recent coverage of VAC in the Chittagong Hill

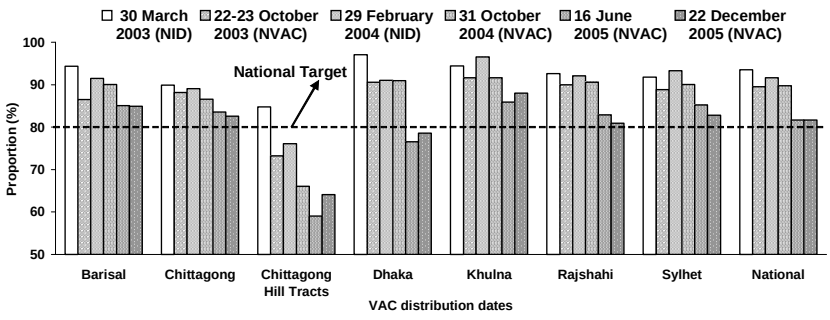

Figure 1. *Coverage of VAC supplementation among 12-59 mo old children on NID/NVAC days in rural Divisions and the Chittagong Hill Tracts and the nationwide coverage in rural areas by VAC distribution dates in 2003-2005*

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Tracts (CHT) was below 70%. In most other divisions, the proportion of non-recipients varied between 10-20%. To reach all children aged 12-59 mo with supplements, special strategies might be needed. Therefore, we will describe the children that are not reached in terms of their family's socio-economic characteristics, and living conditions.

Data collected in rural Bangladesh between Apr-May 2003 and Feb-Mar 2006 by the Nutritional Surveillance Project (NSP) of Helen Keller International in collaboration with the Institute of Public Health Nutrition (IPHN) were analyzed to assess the VAC coverage among children aged 12-59 months. The 6-11 mo age group is also eligible for VAC supplementation but as they are reached through a different distribution channel (measles immunization) the 6-11 mo age group is not included in the analyses presented in this bulletin. The data selected for analysis were collected in the six bimonthly data-collection rounds that directly followed on the six specific NID and NVAC (VAC distribution coupled with NID and National Vitamin A Plus Campaign, respectively) distribution dates. The coverage was calculated among 59,374 children (12-59 mo) who were eligible to receive a VAC at the distribution date. Analyses of 2003-2005 data pertaining to the first five VAC distribution rounds collected from 47,286 children aged 12-50 mo explored the association of VAC receipt with various child and household level characteristics.

Figure 2. *Flash card used by NSP data collectors to ask questions about VAC receipt among children aged 12-59 mo*

Factors associated with VAC receipt

The VAC coverage was similar among girls and boys in all rounds (**Figure 3**). However, coverage was lower among children aged 12-23 mo at the time of VAC distribution compared with older children (24-59 mo) (**Figure 4**). VAD increases the severity of diseases, especially diarrhea. NSP data showed that diarrhea episodes were longer among non-recipient children. The prevalence of diarrhea was also significantly higher among non-recipient children (8.1% vs 6.3%, $P<0.001$). This emphasizes the need to increase coverage, especially among younger children.

Children of poorer households are most in need of VAS because they are most susceptible to VAD in

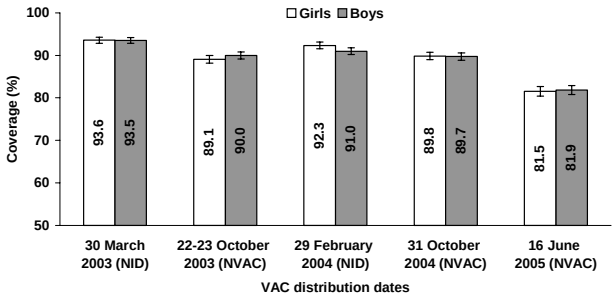

Figure 3. *Coverage of VAC in rural Bangladesh among girls and boys between Mar 2003 and Jun 2005 distribution rounds*

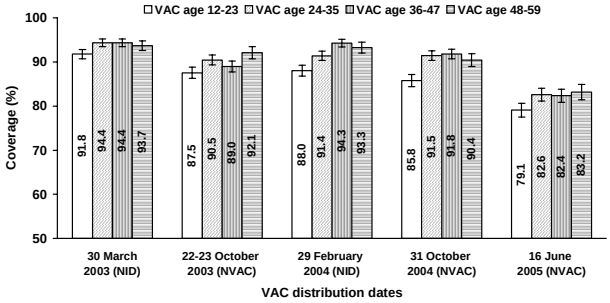

Figure 4. *Coverage of VAC in rural Bangladesh between Mar 2003 and Jun 2005 distribution rounds among children aged 12-59 months by age group*

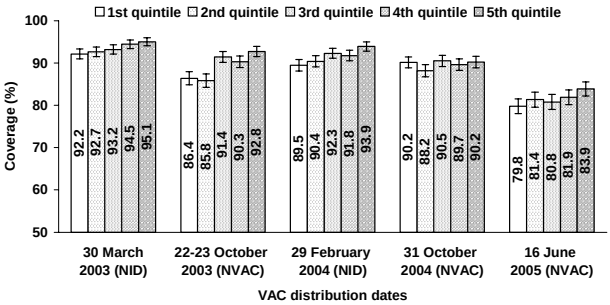

Figure 5. *VAC coverage among children aged 12-59 mo in rural Bangladesh in Mar 2003- Jun 2005 VAC distribution rounds by expenditure quintiles*

[a]Monthly per capita expenditure quintiles: households were ranked according to their total monthly expenditure per capita and then divided into five groups with equal numbers of households. The first quintile includes the poorest, the fifth the wealthiest households.

terms of limited access to VA-rich foods and frequent exposure to illness. However, coverage among children from poorer households (1st and 2nd quintiles[a]) was lower than among children living in the wealthiest households (5th quintile), with the extent of the difference varying by round (**Figure 5)**. Coverage also varied significantly between households who owned or did not own a radio or TV, with a 3-7% higher coverage among those that owned a radio or TV. Coverage did not vary between children of households involved in NGO activities or not (data not shown), but children of households that were in contact with a Government Health Assistant in the last month (**Figure 6**) or a GOB Family Welfare Assistant (data not shown) were more likely to have received a VAC.

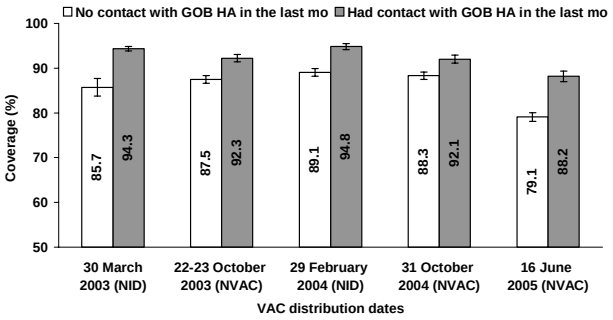

Figure 6. *VAC coverage among children aged 12-59 mo in rural Bangladesh in Mar 2003- Jun 2005 VAC distribution rounds in households who had or had not any contact with the Government Health Assistant in the previous month*

Need for fixed distribution months for VAC supplementation

- The international recommendation for supplementing children 12-59 mo old states that children should receive a VAC every four to six months. Therefore, children may receive 2-3 doses annually and the interval between two doses should not be longer than 6 months. The GOB has translated this into a national policy for distributing VAC biannually among children aged 12-59 mo, but fixed distribution months are yet to be implemented.
- During 2003-2005, the interval between the VAC distribution rounds for children aged 12-59 mo in Bangladesh ranged from 4 to 8 months (see dates in figures).
- Ideally, VAS in Bangladesh would be done in two specific months, 6 months apart, so that the interval between two rounds would not exceed 6 months, and hence not increase the risk of vitamin

Box 1. The National Immunization Days (NIDs) & National Vitamin A Plus Campaign (NVAC)

Vitamin A distribution in Bangladesh has been implemented since 1973, with door to door distribution until the NIDs against polio was introduced in 1995. NIDs were in place to eradicate polio through administering oral doses of the polio vaccine to all under-five children. Because of its very high coverage, on-site administration of VAC supplementation was piggybacked to the NIDs to reach children aged 12-59 mo. However, with polio having virtually come under control, NIDs would be discontinued. Therefore, the National Vitamin A Plus Campaign (NVAC) was started in 2003 with an objective to sustain the less than 1% prevalence of night blindness among children aged less than 5 years by using an integrated approach to deliver a package of interventions that include vitamin A supplementation and other health and nutrition services. The National Nutrition Program (NNP) provides financial supports for the capsules since NNP is implemented. UNICEF procures the VAC, while CIDA, MI and UNICEF contribute to the campaign cost. IPHN coordinates the VAC distribution to rural and urban areas in Bangladesh and implements through GOB administrative units.

VAC distribution date	NID/NVAC	The 'Plus' component IEC messages targeted at caregives (unless specified differently)
30 March 2003	NID (Oral polio vaccine + VAC)	- Not applicable
22 October 2003	NVAC (VAC + deworming*)	- Demonstration of salt testing for iodine content in all primary and high schools and raising awareness on iodine deficiency disorders (IDD)
29 February 2004	NID (Oral polio vaccine + VAC)	- Not applicable
31 October 2004	NVAC (VAC + deworming*)	- The benefits of breastfeeding, food sources of Vitamin A and importance of immunization and VAS
16 June 2005	NVAC (VAC + deworming*)	- Awareness on exclusive breastfeeding and complementary feeding - Importance of pregnant and lactating mothers diet - Importance of vegetables in diet
22 December 2005	NVAC (VAC + deworming*)	- Awareness on VAC for young children at completion of 9 months of age - VAC for women within 6 weeks of delivery

* Children 12-59 mo are eligible for VAC and 24-59 mo for deworming

A deficiency by extending the period between two doses. Such a scheme is already implemented in other countries, such as Cambodia, Indonesia, Niger and Tanzania.

- Fixing the months of VAC distribution will also enable a further increase of coverage because it will facilitate coordination of the distribution related activities at different administrative layers of rural and urban Bangladesh more in advance as well as further increase participation of households to bring their children to receive a VAC.

Recommendations

- The VAS campaign needs to be strengthened to also cover the 10-20% of children who are currently not reached, especially the younger children aged 12-23 mo, children living in the CHT region, children from households with less contact with health service providers and children from poorer households.
- Two fixed distribution months a year, no more than six months apart, need to be set to ensure that children are provided best protection against VADD and coverage is further increased. This will also require sustained funding for VAS and regular, timely release of these funds.
- To improve participation, proper use of media as well as local systems such as miking and informing NGOs and Imams at mosques should be increased to ensure awareness about VAC distribution dates among caretakers of all eligible children.
- The therapeutic supplementation of vitamin A, through integration with IMCI (Integrated Management of Childhood Illness), should also be strengthened to further reduce the loss of lives vulnerable to VAD.

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